

STEINER-PARKER
TM



TWO VOICE TUNING

If you have a two voice Synthacon, a blue trimmer will be present on the back panel. This will adjust the lower voice voltage to VCO 2 which will always be the lowest key pressed, when two or more keys are pressed simultaneously on the keyboard.

This trimmer should only be adjusted when you are sure the scale adjustment is proper. I.e., all octaves on the keyboard play in tune with a single reference pitch. With KBV switches up on both VCO 1 and 2, press a note on the keyboard and tune both VCOs to a perfect unison. Play two notes one octave apart; VCO 2 should play exactly one octave below VCO 1. If it is not exactly an octave lower, adjust trimmer slightly on back of unit. This will necessitate retuning VCO 2 to VCO 1. Make several adjustments turning the trimmer clockwise or counter clockwise until VCO 2 plays exactly one octave below VCO 1.

BACK PANEL CONNECTIONS

On the back of the system are several phono plugs. They operate as follows:

SIG OUT: This is the final output of the VCA and is the main signal output of the system to the rest of the sound system (i.e. the amplifier, mix console, or tape deck).

VC in FILTER: This is an input into which a control voltage external to the system can be fed into the system to control

SYNTHACON VCO TRACKING ADJUSTMENT

VCO 1 has no voltage per octave trimmer. It is non adjustable and set to 1 volt per octave. The keyboard scale trimmer (located near the keyboard controls) adjusts the keyboard scale to match the V/oct reg. of VCO 1. VCO 2 and VCO 3 each have a voltage/octave trimmer on the front panel to adjust their voltage/octave to match VCO 1. In other words, the voltage per octave of VCO 1 is set and everything else i.e. VCO 2, VCO 3, and keyboard, is adjustable to match VCO 1.

VCO 2 and 3 should be adjusted so that their pitch (frequency) tracks perfectly with VCO 1 when all three are played with the keyboard. This adjustment is quite simple.

To adjust VCO 2:

1. Turn off KBV to all VCOs (switch down).
2. Turn on VCO 1 and 2 with VCA open and tune to unison in the lower part of the musical range.
3. Turn both KBV switches on (up) to VCO 1 and 2 and press a key which produces a moderately high note. Do not change range switch on keyboard.
4. Adjust trimmer on VCO 2 until it is in perfect unison with VCO 1 and no beating is heard. VCO 1 and 2 should now track over the entire musical range.

To adjust VCO 3, repeat the above steps using VCO 1 and VCO 3 adjusting VCO 3 trimmer as in step 4.

SYNTHACON SCALE ADJUSTMENT

When an octave is played on the keyboard, an octave change in pitch should be heard from the VCOs. If the scale is out of adjustment it will cause the unit to be in tune on one note but be out of tune when playing one or two octaves higher or lower.

The unit may require an occasional scale readjustment due to vibration from traveling, etc. The scale adjust is a blue front panel trimmer located near the pitch bend and portamento controls.

The scale can be quickly adjusted by alternately playing two notes one octave apart on the keyboard and listening for an exact pitch change from VCO 1.

A more precise method of adjusting the scale is to adjust from the highest note (C) on the keyboard with the range switch in position three. While adjusting the scale in this way the highest note (C) is stationary. Scale adjustment is then a simple matter. 1. While depressing the highest note on the keyboard (C), tune to a reference pitch. 2. Release highest note and depress a note two or three octaves lower (C). While holding this key down adjust scale trimmer until pitch is exactly two or three octaves lower than the reference pitch with no beats present. A handy reference pitch can be VCO 3 with its KBV switch turned off. The exact reference pitch used for scale adjustment is relatively unimportant as we are concerned only with the size of interval produced by the keyboard.

TUNING

Before tuning the Synthacon it is essential to do the following to insure tuning stability.

1. Let unit warm up for five (5) minutes or more. VCOs take approximately five minutes to stabilize after turning unit on.
2. Either have all SH switches below the VCOs off (down) or SH output level pot all the way counterclockwise. Voltage from the SH can be constantly varying or is always subject to change as this is a random voltage source used to produce random pitches.
3. Make sure pitch bend is in its dead spot. (mid position)
4. All modulation input switches to VCOs are down except for KBV which is in the input from the keyboard.
5. Hold key down while tuning. The keyboard voltage can move slowly when all keys are up.

If Synthacon tunes up to one pitch but plays out of tune at other octaves on the keyboard, readjust scale trimmer as described in the scale adjustment instructions.

VCO tracking.

Tune VCO #1 Low pitch HBU off

Tune VCO #2 " " " "

Turn HBU on both VCO 1 & 2.

adjust VCO #2 trim to match VCO 1

VCO #2 IS Now adjusted.

Tune VCO #1 & 3 to Low pitch HBU off

Turn HBU on both VCO 1 & 3

Keyboard Scale

(Blue trimmer on Front Panel) (near HBU)

Use VCO 3 as ref tone HBU off.

Use VCO 4 with HBU on

Tune VCO 4 one octave higher than
VCO 3 with octave switch in
Pos 3 and highest key
depressed.

Play Lowest note on KBD and
adjust Scale trimmer on Front
Panel (Keyboard area) until VCO 4
is in tune with VCO 3.

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octave switch adj.

Octave sw should be in Pos 3

Tune VCO 1 one octave higher than VCO #3 (VCO 3 HBV on) (VCO 1 HBV on)

Turn Oct switch to pos 2
adjust top PCB Trimmer (main PCB) till VCO 1 is in tune with VCO 3.

Turn Oct switch to pos 4
adjust Bottom trimmer till VCO 1 is in tune with VCO 3.

VCO tracking should be adjusted before these steps) Two Voice Synthesizer octave switch adjustment

Leave highest key pressed. Turn octave switch to pos 1
Turn off VCO 3

Tune VCO 1 & 2 To unison on low pitch with HBV on both VCO'S

Turn octave switch to pos 2.

adjust Bottom trimmer (Two Voice PCB) until both VCO'S are in tune.

Turn octave switch to pos 3
adjust upper trimmer on (Two Voice PCB) till Both VCO'S are in tune.

Two Voice Rear Trimmer

Turn Octave switch to pos 2

Turn on Vco 2 only with HBV on

Hold 2-Bottom Key depressed while holding lowest key, press highest key up & down and adjust rear trimmer until Vco pitch is zero deviation. Overall will shift during this adjustment.

critical adj.

VCO Tracking

VCO 1 No adj.

adj. keyboard scale

Blue trim on front

panel in keyboard area

VCO 2 } adjust to

VCO 3 } match VCO 1

Keyboard

Scale

Trim on

(F.P. keyboard area)

use VCO 2 as tone ref w/o keyboard

must be adjusted using

VCO 1 with keyboard

adjust in pos 3, and

start on keyboard highest note

Keyboard octaves

Top pot first

Bottom pot second.

} on main

PCBD

Keyboard octaves on two voice BD

rear two voice trimmer

adjust for no change in
pitch of VCO 2 when